



# USER CENTERED DESIGN (UCD): INTRODUCTION TO DASHBOARD DESIGN STRATEGIES

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# Overview

- Introduction
- Background
- UCD Principles
- Phases of UCD
- Methodology and Tools
- Importance of UCD
- Dashboard
- Strategies for Dashboard Creation
- Users Experience



# User Centered Design

# What is User Centered Design?

- User Centered Design (UCD) is an iterative design process in which designers and other stakeholders focus on the users and their needs in each phase of the design process.
- UCD calls for involving users throughout the design process via a variety of research and design techniques so as to create highly usable and accessible products for them.

— [Definition of user-centered design \(UCD\)](#) by the Interaction Design Foundation

# User Centered Design

## What is UCD?

- Understand user's need
- Meeting user's need
- Creating useful product

## Characteristics of UCD

- Easy to use
- Easy to learn
- Fun

# Five major UCD principles

- A clear understanding of user and task requirements.
- Incorporating user feedback to define requirements and design.
- Early and active involvement of the user to evaluate the design of the product.
- Integrating user centered design with other development activities.
- Iterative design process.



**First trillion dollar company:**



# Phases of the UCD process

The following are the general phases of the UCD process:

- **Specify the context of use:** Identify the people who will use the product, what they will use it for, and under what conditions they will use it.
- **Specify requirements:** Identify any business requirements or user goals that must be met for the product to be successful.
- **Create design solutions:** This part of the process may be done in stages, building from a rough concept to a complete design.
- **Evaluate designs:** Evaluation - ideally through usability testing with actual users - is as integral as quality testing is to good software development.





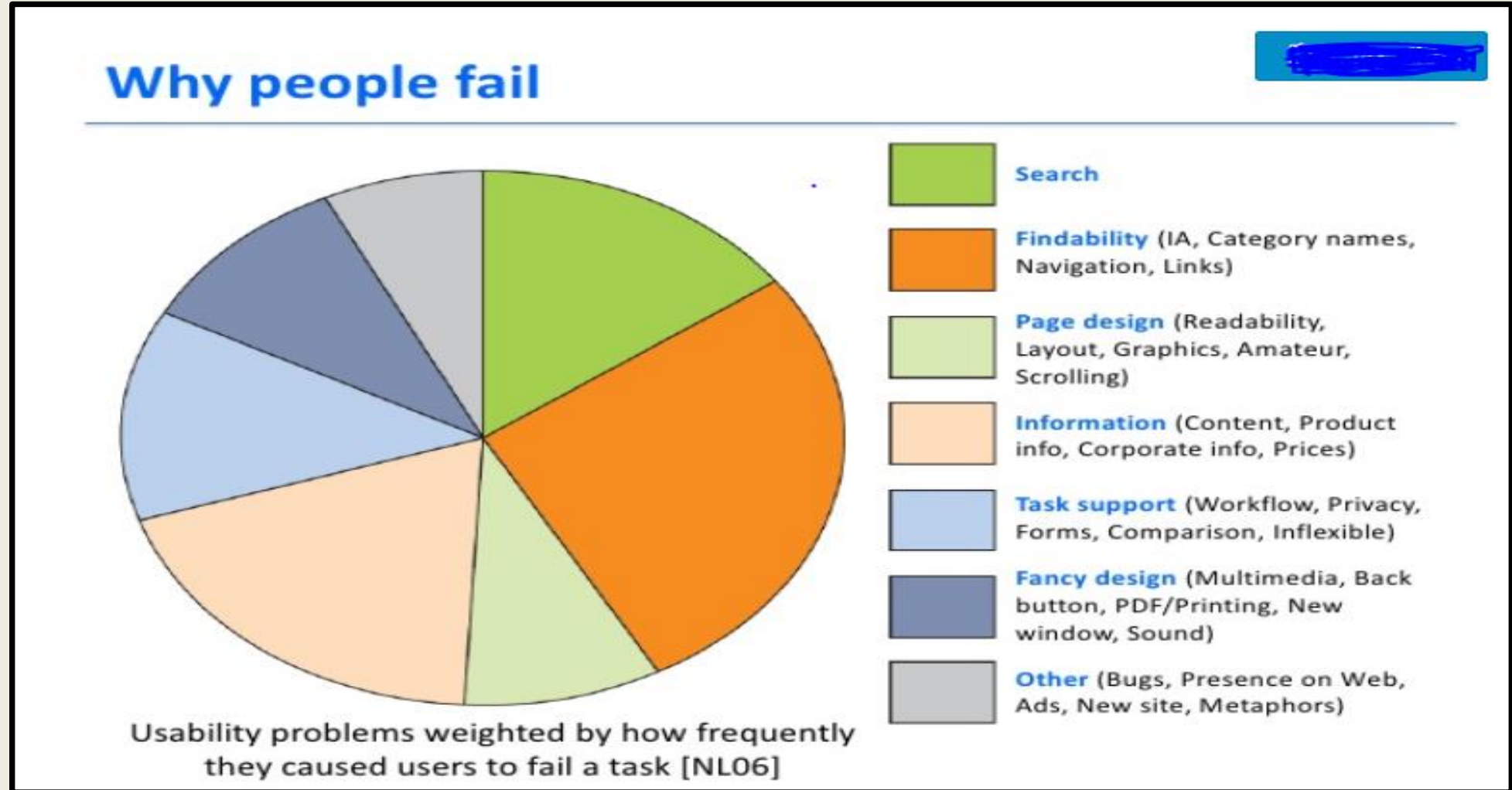
# Popular user centered design methods:

Method	Cost	Output	Sample size	When to use
Focus groups	Low	Non-statistical	Low	Requirements gathering
<u>Usability testing</u>	High	Statistical and non-statistical	Low	Design and evaluation
Card sorting	High	Statistical	High	Design
Participatory design	Low	Non-statistical	Low	Design
Questionnaires	Low	Statistical	High	Requirements gathering and evaluation
Interviews	High	Non-statistical	Low	Requirements gathering and evaluation

# The following questions are typically asked during the UCD process:

- Who uses your product?
- What are their goals?
- What are users searching for?
- What are they interested in?
- How do your users see the process of completing a task?
- What do they say and how they do it?
- How easy is it for your users to understand what they should do using your product?
- How much time do users spend on figuring out how to actually do what they want to do? And many others.

# Why is UCD Important?



Lets talk about UCD in Dashboard





# The Design Process



Discover

Who is using this dashboard?



Distill

What are their main goals?



Ideate

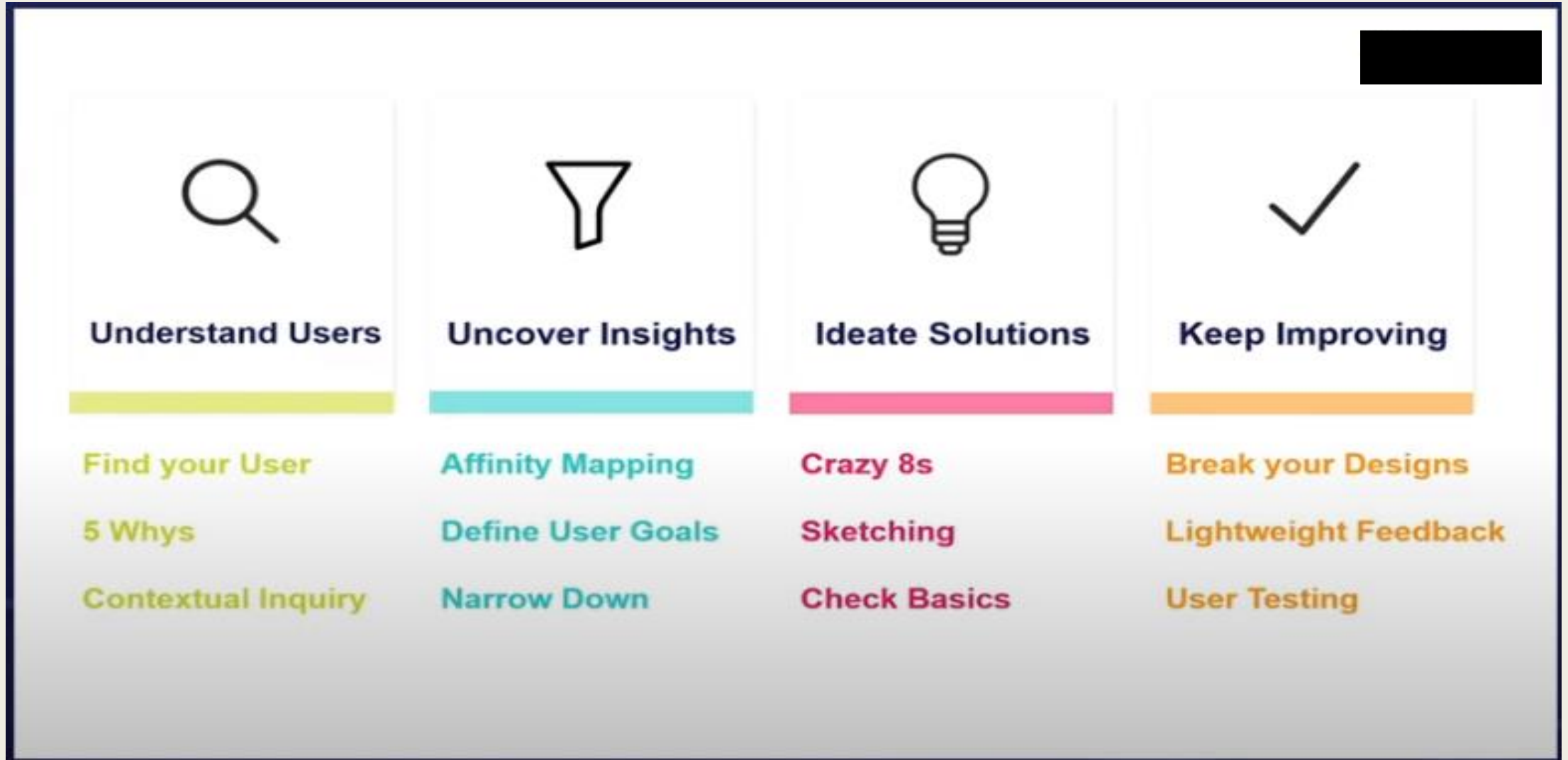
How can I enable their success?



Validate

Where can I improve the dashboard?

# The Design Process



# UCD steps for creating a dashboard

- Goals
- Users
- Data
- Design and Layout
- User Feedback
- Designing Dashboard
- Overall Best Practices



# Goal - What data should we display?

*UX professionals can help their product teams avoid an initial scavenger hunt for data to display on a dashboard by getting their teams focused on user needs.*

What is a particular user's main reason for visiting the dashboard?

What triggers a user's visiting the dashboard?

How frequently would a user visit the dashboard?

What is a user trying to assess?

What critical decisions does a user have to make?

Are there conditions of which we need to alert a user?



# Users/Audience

- You must know who will be the immediate audience that will use your dashboard.
- No one dashboard fits all types of audience.
- Find your users



# Data- Where should we place the data?

*You need to decide how to arrange the data on a page—not based on the aesthetics of the page, but on the ways in which the information flow must support users' workflows.*

What are the critical *must-see* or *must-do* items?

What is the likely flow of a user's focus?

Is there a logical grouping scheme?

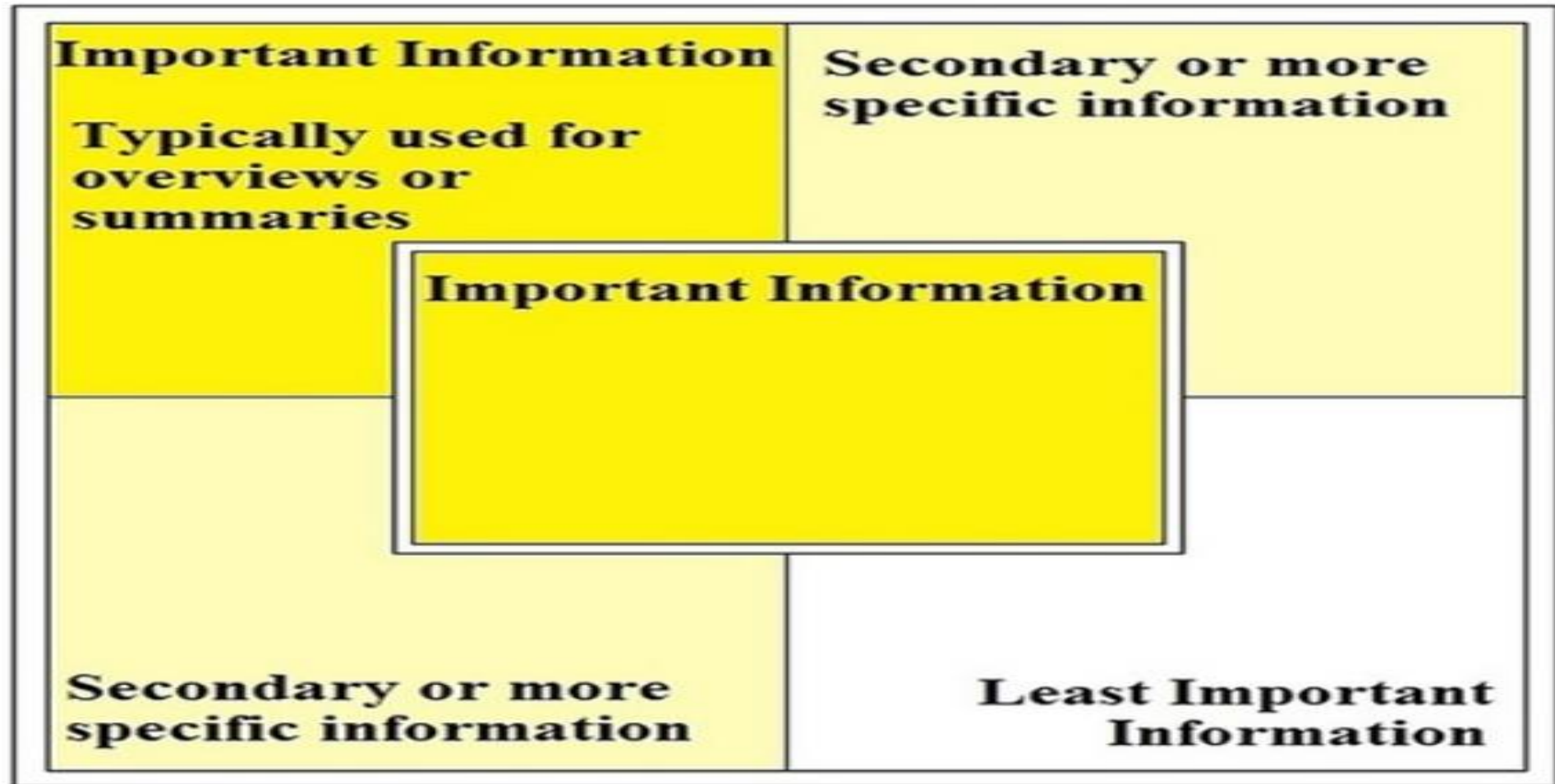
Would a user want to compare some data with other data?





# Layout - Use an intuitive layout

There is a consensus among information visualization experts that a dashboard should be divided into 5 distinct regions, based on their eye-catching properties.



Dashboard layout for the best results (Source: [Interaction Design Foundation](#))

# Data Representation

Data representation is a complex task, especially if one wants to display multiple types of information in a dashboard, be it static or dynamic that changes over time.



# When to use various graph types

## Relationship

Static



Scatter chart



Bubble chart



Network Diagram

## Comparison

Static



Column chart



Bar chart



Column overlap chart



Circular area chart

Over Time



Line chart

## Composition

Static



Pie/Donut chart



Tree map



Heat map



Sunburst chart

Over Time



Stacked column chart



Stacked area chart



Waterfall chart

## Distribution

Static



Scatter chart



Histogram chart



Bell curve

# Charts types to avoid

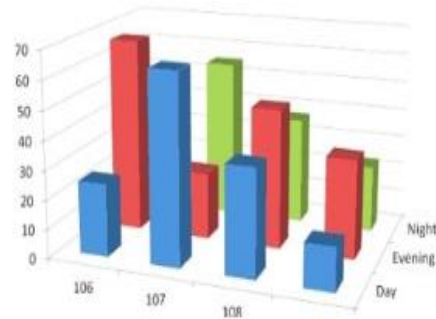
Don't

Gauges



Don't

3D charts



Don't

?????????



# Users Feedback

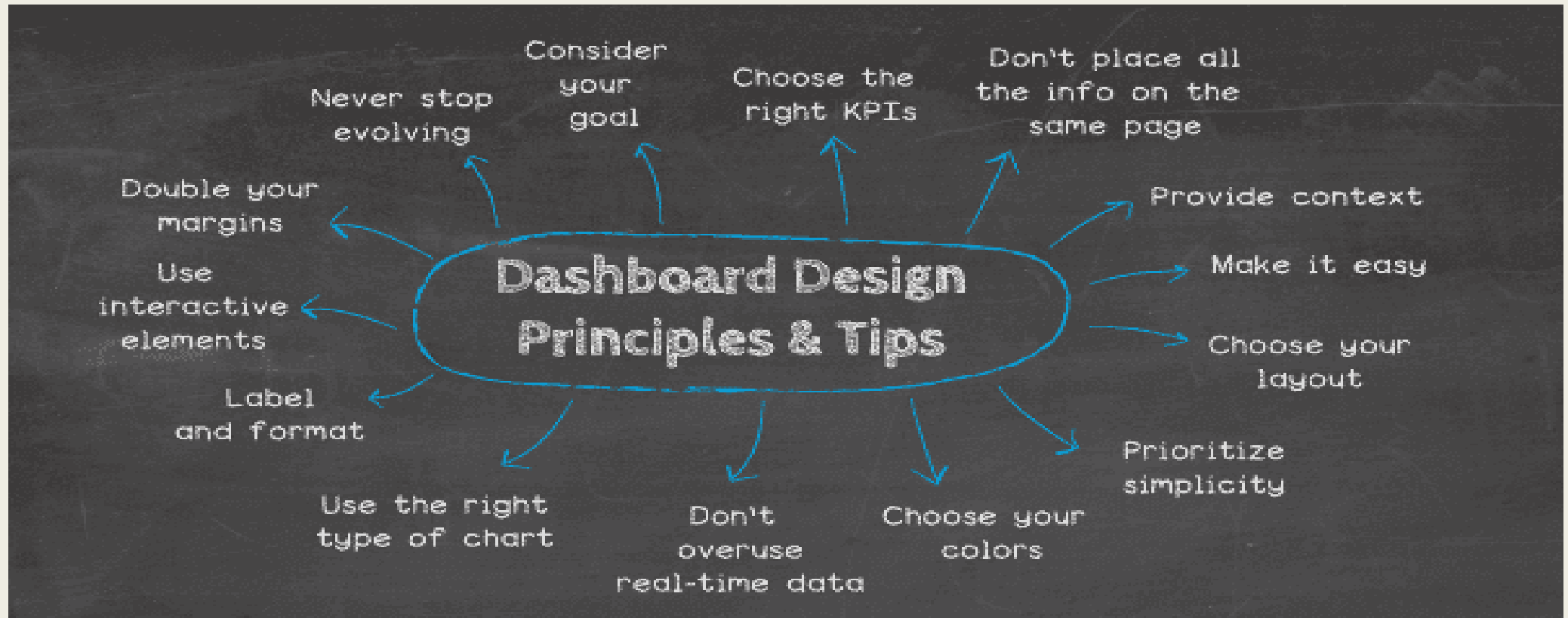


# Design the dashboard last





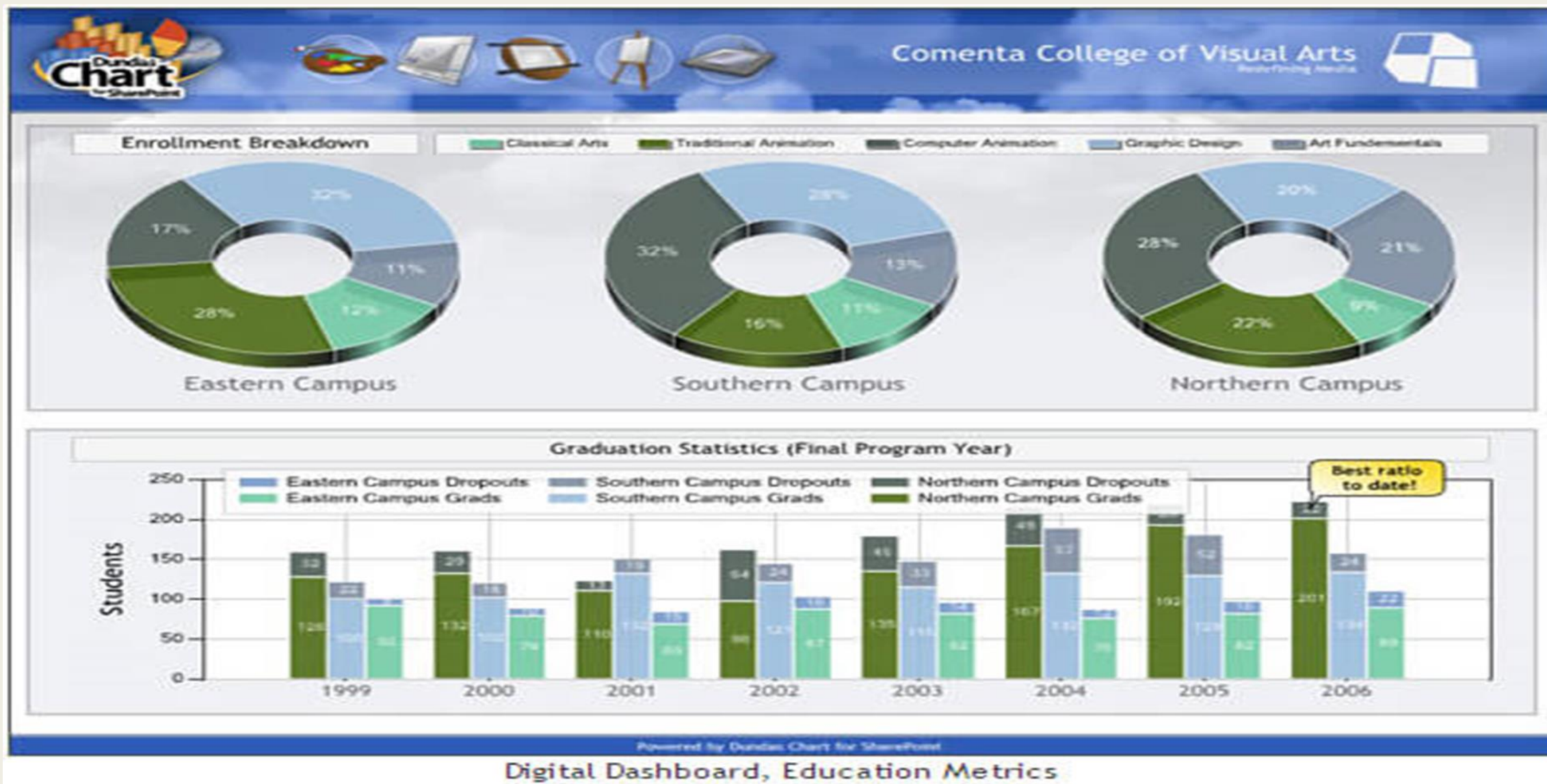
# The 14 definitive dashboard design best practices:



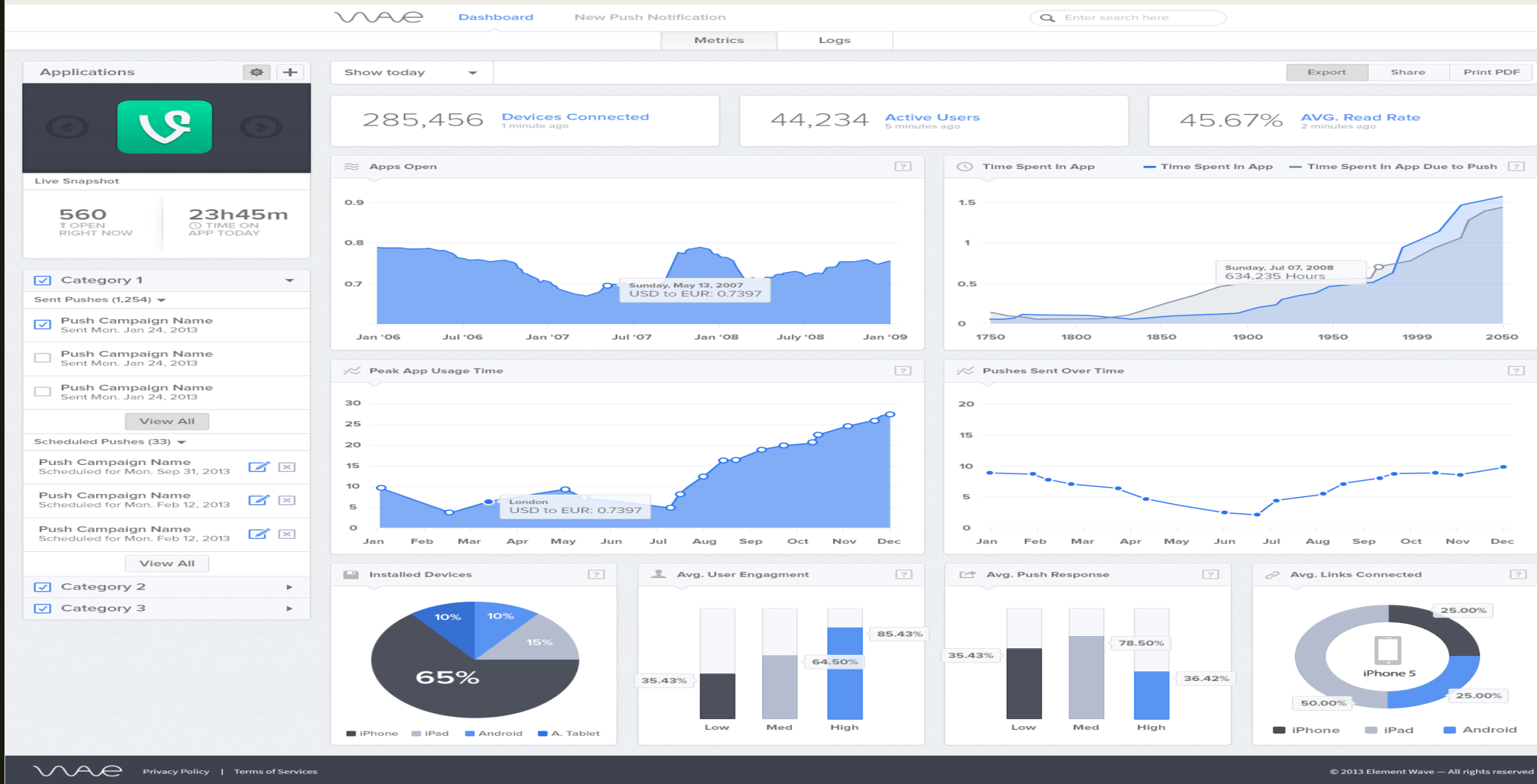
We will test the user experience:



# Bad Dashboard Design:

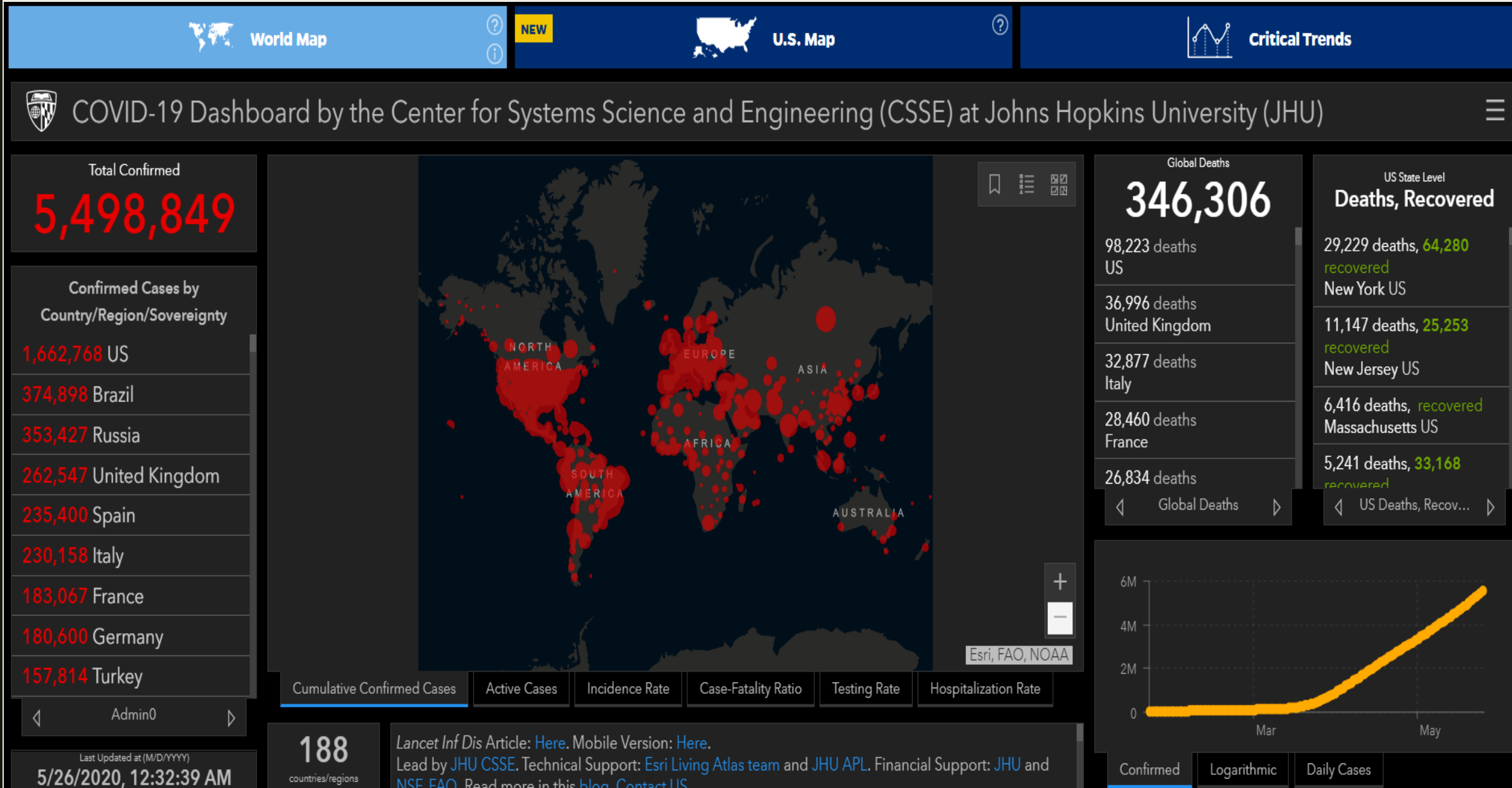


# Good Dashboard Design:





# JHU coronavirus dashboard (Thoughts)



# References:

- <https://www.usability.gov/what-and-why/user-centered-design.html>
- <https://uxplanet.org/10-rules-for-better-dashboard-design-ef68189d734c>
- <https://www.uxmatters.com/mt/archives/2010/11/dashboard-design-101.php>
- <https://www.uxmatters.com/mt/archives/2007/04/book-review-information-dashboard-design.php>
- <https://www.datapine.com/blog/dashboard-design-principles-and-best-practices/>
- Tableau conference
- <https://www.matillion.com/resources/blog/dashboard-examples-the-good-the-bad-and-the-ugly/>



Thank you !!